WHAT IS CLAIMED IS:

1. Data storage format for storing color image with extended gamut color values that is compatible with limited color gamut imaging systems

5   comprising:

a first section for storing the image in a limited gamut color space;

a second section for storing information identifying those regions within the image that have extended gamut color values;

a third section for storing the extended gamut data for regions that

10   are identified in the second section.

2. The data storage format described in claim 1, wherein the data stored in a first section of the data storage format is in a JFIF format.

15   3. The data storage format described in claim 1, wherein the data stored in a first section of the data storage format is in a TIFF format.

4. The data storage format described in claim 1, wherein the data stored in a third section of the data storage format is in a compressed format.

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5. The data storage format described in claim 4, wherein the image stored in a third section of the data storage format can be added to the data stored in a first section of the data storage format as a private tag.

6. Method for storing image data of an original image having

extended gamut color values comprising;

identifying regions within the original image that contain extended

gamut color values;

5   using a compact notation to store an identification of the extended

gamut regions in a second section of the data storage format;

gamut-mapping image data pertaining to the extended gamut

regions to a limited gamut color space;

storing the gamut-mapped image data together with original image

10   data not in an extended gamut region in a first section of the data storage format;

encoding image data for the extended gamut regions in an extended

gamut color space;

storing image data for the extended gamut regions in a third section

of the data storage format.

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7. The method described in claim 6, wherein technique used for the

gamut mapping replaces color values for extended gamut pixels in the original

image with limited gamut color values that come closest to the desired extended

gamut color values.

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8. The method described in claim 6, wherein data stored in a third

section of the data storage format is encoded in CIELAB color space.

9. The method described in claim 8, wherein the encoding is in 16 bit fixed point.

10. The method described in claim 8, wherein the encoding is in 32 bit IEEE floating point.

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11. The data storage format described in claim 6, wherein the data stored in a third section of the data storage format is encoded using an extended gamut RGB color space.

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12. The method described in claim 6, wherein the image data stored in a first section of the data storage format is compatible with legacy devices that have a limited color gamut.

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13. The method described in claim 6, wherein the data stored in a first and third sections of the data storage format are combined in order to reconstruct an extended gamut image.

14. The data storage format described in claim 6, wherein the data in a second section of the data storage format corresponds to rectangular areas.

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15. Method for using data stored in data storage format including a first section for storing the image in a limited gamut color space, a second section for storing information identifying those regions within the image that have

extended gamut color values, and a third section for storing the extended gamut
data for regions that are identified in the second section, comprising:

utilizing image data stored in a first section of the data storage
format in connection with limited gamut image processing devices;

5   utilizing image data stored in all three sections of the data storage
format in connection with color image processing devices which are compatible
with extended gamut data.

16. The method defined in claim 15, wherein the extended gamut

10   data stored in a third section of the data storage format is attached to the data stored
in a first section of the data storage format as a private tag.

17. The method defined in claim 15, wherein the private tag is
ignored by a legacy device that is incompatible with extended gamut image data.

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18. The method defined in claim 17, wherein the private tag and the
data stored in a first section of the data storage format are utilized by a device that
is compatible with extended gamut image data.

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